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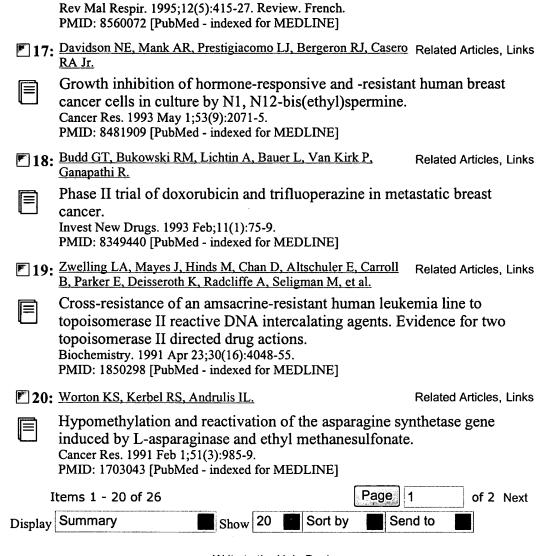




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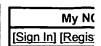


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## Antibiotic resistance caused by gram-negative multidrug efflux pumps.

#### Nikaido H.

Department of Molecular and Cell Biology, University of California, Berkeley 94720-3206, USA.

Minimum inhibitory concentrations (MICs) of most lipophilic agents tend to be much higher against gram-negative than gram-positive bacteria. Multidrug efflux pumps that traverse both the inner and outer membranes make a major contribution to this intrinsic resistance of gram-negative bacteria. Such a pump is composed of at least three components, is energized by the proton-motive force, and can pump out not only an extremely wide variety of detergents, dyes, and antibiotics, but also those compounds, such as beta-lactams, that do not easily cross the cytoplasmic membrane. Increased expression of these pumps can raise the MICs to an impressive level. For example, 80% of carbenicillin-resistant clinical isolates of Pseudomonas aeruginosa from the British Isles owed their resistance to overexpression of an efflux pump and had carbenicillin MICs that were up to 2,000 times higher than that of the pump-deficient mutant strain.

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# [Mechanism of antibiotic resistance in bacteria responsible for respiratory infections]

[Article in French]

### Dye D, Croize J, Brambilla C.

Laboratoire de Bacteriologie, CHU de Grenoble.

Bacterial resistance is both a frequent phenomena and in perpetual evolution; currently it effects all antibiotics. The acquisition of resistance is a result of chromosomal mutations or is a contribution of genetic material either as plasmids or transposons. The principle mechanisms which can be isolated or associated can be grouped together under changes of bacterial permeability which alters the target of the anti-infectious agents; or the synthesis of enzymes which inhibit the activity of the antibiotic. Some micro-organisms such as Staphylococcal aureus, Streptococcus pneumoniae, Haemophilus influenzae, Pseudomonas aeruginosa, and certain enterobacteria have developed resistance to varying degrees against the antibiotics initially or more recently introduced which pose, in some cases, very real therapeutic problems. The prescribing doctor should recognise the principle bacterial phenotypes which are resistant, as well as the rules of association of the different antibiotics in order to institute an effective antiinfectious regime, which allows the cure of the patient and limits any introduction of resistance or the selection of resistant mutants.

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